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Peter B. Martine
MARTINE & PENILLA, LLP
710 Lakeway Drive
Suite 170
Sunnyvale, CA 94085

EXAMINER	
MURPHY, DILLON J	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/980,210	IWATA ET AL.	
	Examiner	Art Unit	
	Dillon J. Murphy	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

DOUGLAS Q. TRAN
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/25/02, 6/13/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS filed Jan 11, 2002*.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on April 7, 2000. It is noted, however, that applicant has not filed a certified copy of the JP 2000-106486, JP 2000-106599, JP 2000-107055, or JP 2000-107231 applications as required by 35 U.S.C. 119(b).

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The abstract of the disclosure is objected to because it is more than one paragraph. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: on page 30, line 19, "printer 14" should be –printer 60--. On page 34, line 19, "he" should be –the--. On page 39, line 9, "printers 60, 7, and 80" should be –printers 60, 70, and 80--.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-20, 35-43, 54-58, and 79-96 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer programs claimed are merely a set of instructions per se and are not clearly embodied on a computer-readable medium to be executed by a computer. Since the computer program is merely a set of instructions not embodied on a computer readable medium to realize the computer program functionality, the claimed subject matter is not statutory. See MPEP § 2106 IV.B.1.

A possible amendment may be "a computer-recordable medium comprising computer-executable instructions, causing a computer to perform the steps of...".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Kato (US 6,760,118).

Regarding claim 1, Kato teaches a distributed printing control apparatus connecting with a plurality of printers, said distributed printing control apparatus distributing print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into said plurality of printers (Kato, figure 8, printers #2000 and #3000), converting the distributed print data into output data suitable for each of said printers via a printer driver provided for said each printer (Kato, figure 7, using print drivers provided for each printer), and transmitting the converted output data to said each printer, said distributed printing control apparatus comprising:

A virtual printer driver storage module that stores therein a virtual printer driver for specifying information on a virtual printer (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program); and

An intermediate print data generation module that executes the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program), wherein the obtained intermediate print data is used as the print data of interest (Kato col 8, ln 32-38, when distributed printing is called for, virtual driver is used to obtain intermediate print data as print data of interest).

Regarding claim 4, which depends from claim 1, Kato teaches a distributed printing control apparatus further comprising:

A virtual printer printing information setting module that displays an input window on a display device and sets various pieces of information required for printing with said

virtual printer (Kato, figure 7, virtual print driver sets printing information), based on input data from an input device like a mouse and a keyboard (Kato, col 3, ln 19-20, input is accomplished through a mouse or keyboard).

Regarding claim 5, which depends from claim 4, Kato teaches a distributed printing control apparatus further comprising:

An information transmission module that causes at least part of the various pieces of information set by said virtual printer printing information setting module to undergo a series of processing carried out by each printer driver (Kato, col 8, ln 17-22, virtual printer causes processing to be carried out by specific printer drivers).

Regarding claim 11, Kato further teaches a distributed printing control method that distributes print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000), converts the distributed print data into output data suitable for each of said printers via a printer driver provided for said each printer (Kato, figure 7, using print drivers provided for each printer), and transmits the converted output data to said each printer, said distributed printing control method comprising the steps of:

(a) Providing in advance a virtual printer driver for specifying information on a virtual printer in a storage device (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program); and

(b) Executing the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer

contains CPU and RAM for executing virtual driver program), wherein the obtained intermediate print data is used as the print data of interest (Kato col 8, ln 32-38, when distributed printing is called for, virtual driver is used to obtain intermediate print data as print data of interest).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 3, 10, 12-17, 20, 59-66, 70-72, 74, 76-86, 88, 90-92, 94, and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Yacoub (US 6,552,813).

Regarding claim 2, which depends from claim 1, Kato teaches a distributed printing control apparatus comprising a virtual printer driver storage module with a virtual driver, an intermediate print data generation module that executes the virtual printer driver, wherein the intermediate print data is the print data of interest, as explained above in the rejection of claim 1. Kato does not expressly disclose a distributed printing control apparatus wherein the virtual printer driver specifies information with regard to a highest performance printer among all available printers as destinations of distribution. Yacoub, however, discloses an apparatus wherein the virtual printer driver specifies information with regard to a highest performance printer

among all available printers as destinations of distribution (Yacoub, col 4, ln 30-36, wherein virtual printer finds available printers meeting user's preferences).

Kato and Yacoub are combinable because they are from the same field of endeavor of distributed printing with virtual print drivers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Yacoub wherein the virtual printer specifies printer information with the apparatus of Kato comprising a virtual printer storage module with virtual printer driver, an intermediate print data generation module for executing a virtual driver, wherein the obtained intermediate information is the print data of interest. The motivation for doing so would have been to relieve the user of the burdens of trying to find or select the most appropriate printer for the job (Yacoub, col 5, ln 1-2), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Yacoub with Kato to obtain the invention as specified in claim 1.

Regarding claim 3, which depends from claim 2, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A performance information collection module that collects information with regard to performances of all said available printers as the destinations of distribution from printer drivers individually provided for said available printers (Yacoub, col 4, ln 30-36, wherein virtual printer collects information of available printers meeting user's

preferences, wherein the database of information is updated from the print drivers or the printer, col 5, ln 44-50); and

A highest performance selection module that selects a highest performance among the performances of all said available printers collected by said performance information collection module (Yacoub, col 4, ln 53-55, highest performer with respect to preferences is selected to print the job).

Regarding claim 10, which depends from claim 1, the combination of Kato and Yacoub teaches a distributed printing control apparatus wherein said plurality of printers are connected to said distributed printing control apparatus via a computer network (Yacoub, figure 5, actual printers #660 and #670 are connected via network #650 to client station with distributed printing control apparatus).

Regarding claim 12, which depends from claim 2, the combination of Kato and Yacoub teaches a distributed printing control method that distributes print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000), converts the distributed print data into output data suitable for each of said printers via a printer driver provided for said each printer (Kato, col 8, ln 17-22, individual print drivers are used to for each printer), and transmits the converted output data to said each printer (Kato, col 5, ln 15-24, pages are sent to respective printers), said distributed printing control method comprising at least one step corresponding to the structure of a distributed printing control apparatus in accordance

with claim 2 (Yacoub, col 4, ln 30-36, wherein virtual printer finds available printers meeting user's preferences).

Regarding claim 13, the combination of Kato and Yacoub teaches a computer-readable medium comprising computer executable instructions (Kato, col 3, ln 6-14, real and virtual drivers executed on computer with CPU and RAM) causing a computer to execute the steps used in a distributed printing control apparatus, said distributed printing control apparatus connecting with a plurality of computers (Yacoub, figure 4, client station A #420, client station B #422), distributing print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000), converting the distributed print data into output data suitable for each of said printers via a printer driver provided for said each printer (Kato, col 8, ln 17-22, individual print drivers are used to for each printer), and transmitting the converted output data to said each printer (Kato, col 5, ln 15-24, pages are sent to respective printers), said computer program causing a computer to execute the instructions of:

(a) Providing in advance a virtual printer driver for specifying information on a virtual printer in a storage device (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program, and figure 7, wherein information is specified in the virtual printer dirver); and

(b) Executing the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer

contains CPU and RAM for executing virtual driver program) and using the obtained intermediate print data as the print data of interest (Kato col 8, ln 32-38, when distributed printing is called for, virtual driver is used to obtain intermediate print data as print data of interest).

Regarding claim 14, which depends from claim 13, the combination of Kato and Yacoub teaches a computer-readable medium comprising computer executable instructions causing a computer to execute steps wherein the virtual printer driver specifies information with regard to a highest-performance printer among all available printers as destinations of distribution (Yacoub, col 4, ln 30-36, wherein virtual printer finds both available and the best printers meeting user's preferences).

Regarding claim 15, which depends from claim 14, the combination of Kato and Yacoub teaches a computer-readable medium comprising computer executable instructions causing a computer to execute steps of:

(c) Collecting information with regard to performances of all said available printers as the destinations of distribution from printer drivers individually provided for said available printers (Yacoub, col 4, ln 30-36, wherein virtual printer collects information of available printers meeting user's preferences, wherein the database of information is updated from the print drivers or the printer, col 5, ln 44-50); and

(d) Selecting a highest performance among the performances of all said available printers collected by said function (c) (Yacoub, col 4, ln 53-55, highest performer with respect ot preferences is selected to print the job).

Regarding claim 16, which depends from claim 13, the combination of Kato and Yacoub teaches a computer-readable medium comprising computer executable instructions causing a computer to execute steps of:

(e) Displaying an input window on a display device and setting various pieces of information required for printing with said virtual printer (Kato, figure 7, virtual print driver sets printing information), based on input data from an input device like a mouse and a keyboard (Kato, col 3, ln 19-20, input is accomplished through a mouse or keyboard).

Regarding claim 17, which depends from claim 16, the combination of Kato and Yacoub teaches a computer-readable medium comprising computer executable instructions causing a computer to execute steps of:

Causing at least part of the various pieces of information set by said function (e) to undergo a series of processing carried out by each printer driver (Kato, col 8, ln 17-22, virtual printer causes processing to be carried out by specific printer drivers).

Regarding claim 20, the combination of Kato and Yacoub teaches a computer-readable medium comprising computer executable instructions (Kato, col 3, ln 6-14, real and virtual drivers executed on computer with CPU and RAM) causing a computer to execute steps of controlling a distributed printing control apparatus, said distributed printing control apparatus connecting with a plurality of computers (Yacoub, figure 4, client station A #420, client station B #422), distributing print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000), converting the distributed print data into output data suitable

for each of said printers via a printer driver provided for said each printer (Kato, col 8, ln 17-22, individual print drivers are used to for each printer), and transmitting the converted output data to said each printer (Kato, col 5, ln 15-24, pages are sent to respective printers), said computer program causing a computer to execute the instructions of:

(a) Providing in advance a virtual printer driver for specifying information on a virtual printer in a storage device (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program); and

(b) Executing the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program) and using the obtained intermediate print data as the print data of interest (Kato col 8, ln 32-38, when distributed printing is called for, virtual driver is used to obtain intermediate print data as print data of interest).

Regarding claim 59, the combination of Kato and Yacoub further teaches a distributed printing control apparatus, comprising:

A printer specification module that specifies multiple printers as destinations of distribution among all printers connecting with said distributed printing control apparatus to allow data transmission (Yacoub, col 4, ln 30-41, module checks user preferences and specifies multiple printers for distributed printing); and

A distribution control module that outputs print data of interest, which is to be printed, in a distributive manner to the multiple printers specified by said printer

specification module (Kato, col 5, ln 15-24, print job is printed in a distributive manner), said distribution control module comprising:

A printer selection module that, when any trouble arises in any of the multiple printers specified by said printer specification module, selects one printer immediately available for printing (Yacoub, col 7, ln 19-21, when trouble arises, a new printer is selected for printing to continue) among all the printers except the printer with the trouble (Yacoub, col 6, ln 34-37, search for available printer while excluding troubled printer); and

A troubled-time output module that outputs a distributed portion of the print data to the printer selected by said printer selection module as an alternative printer for the printer with the trouble (Yacoub, col 7, ln 30-37, sends jobs to alternative printer and waits until job is complete).

Regarding claim 60, which depends from claim 59, the combination of Kato and Yacoub further teaches a distributed printing control apparatus wherein said printer selection module comprises an identification module that identifies type of each printer to select a printer of an identical or similar type with or to a type of the printer with the trouble (Yacoub, col 5, ln 55-63, printer identification module identifies printers and ranks accordingly by performance, with identical or similar printers possibly attaining the same rank. Alternative printers are chosen from this list).

Regarding claim 61, which depends from claim 60, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A performance information input module that receives information on performances of the respective printers from printer drivers provided for respective types of all the printers (Yacoub, col 5, ln 55-63, information is received from database on performance of all printers, wherein the database is updated from the print drivers or the printer, col 5, ln 44-50), wherein said identification module comprises a type specification module that specifies a printer of the identical or similar type, based on the information input into said performance information input module (Yacoub, col 4, ln 53-63, if fastest or highest quality printer is unavailable, apparatus will specify printer of similar type, e.g. the next fastest or the next highest quality printer).

Regarding claim 62, which depends from claim 59, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A monitor module that monitors occurrence of any trouble in each of the multiple printers specified by said printer specification module, wherein said distribution control module comprises an after-start-of-printing alternative control module, when said monitor module detects occurrence of any trouble in any of the multiple printers during a time period between a start of distributed output of the print data and completion of printing with each printer, outputs non-printed page data, which is included in a distributed portion of the print data output to the printer with the trouble, to the alternative printer (Yacoub, col 7, ln 10-21, after print job is spooled, apparatus continuously checks for errors. If an error is detected, the print data is sent to an alternative printer).

Regarding claim 63, which depends from claim 62, the combination of Kato and Yacoub further teaches a distributed printing control apparatus wherein after-start-of-printing alternative control module outputs page data, which represents a message showing replacement of the printer, to the alternative printer (Kato, col 5, ln 25-31, when an alternative printer is chosen to print pages in an alternative manner, a dummy page, i.e. a replacement page, is sent to printer showing replacement. See also figure 9 of Kato).

Regarding claim 64, which depends from claim 59, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A monitor module that monitors occurrence of any trouble in each of the multiple printers specified by said printer specification module, wherein said distribution control module comprises a before-printing alternative control module, when said monitor module detects occurrence of any trouble in any of the multiple printers prior to a start of distributed output of the print data, outputs a portion of the print data, which is expected to be output to the printer with the trouble, to the alternative printer (Yacoub, col 9, ln 41-54, if job is sent to printer that is out of paper, before distributed printing can begin, another alternative printer is selected and the job is sent to the new printer).

Regarding claim 65, which depends from claim 59, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A printer reselection module that, when any trouble arises in the alternative printer (Yacoub, col 7, ln 10-21, after print job is spooled to either original printer or alternative printer, apparatus continuously checks for errors, and reselection process

can occur if trouble occurs with alternative printer. If an error is detected, the print data is sent to an alternative printer), selects one printer immediately available for printing among all the printers except the printer with the trouble (Yacoub, col 6, ln 34-37, search for available printer while excluding troubled printer); and

A module that outputs a portion of the print data in a distributive manner to the printer selected by said printer reselection module as a new alternative printer (Yacoub, col 7, ln 10-21, if an error is detected, the print data is sent to a new alternative printer).

Regarding claim 66, which depends from claim 59, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A candidate printer selection module that selects at least one printer that is of an identical or similar type with or to a type of the printer with the trouble and is immediately available for printing (Yacoub, col 4, ln 53-63, if fastest or highest quality printer is unavailable or has an error, apparatus will specify printer of similar type, e.g. the next fastest or the next highest quality printer), among all the printers except the printer with the trouble (Yacoub, col 6, ln 34-37, search for available printer while excluding troubled printer); and

An alternative printer selection module that selects one printer satisfying a predetermined condition out of the at least one printer selected by said candidate printer selection module (Yacoub, col 4, ln 53-67 and col 5, ln 1-13, using same criteria as choosing a candidate printer, apparatus chooses alternative printer if fastest or highest quality printer is unavailable or has an error. Said apparatus will specify printer of similar type, e.g. the next fastest or the next highest quality printer).

Regarding claim 70, which depends from claim 66, the combination of Kato and Yacoub teaches a distributed printing control apparatus wherein said candidate printer selection module comprises:

A speed preference decision module that determines whether or not a speed preference mode is set for distributed printing (Yacoub, col 5, ln 1-13, user can select preference of speed and quality); and

An under-speed-preference-mode selection module that selects one available printer regardless of type of the printer, when said speed preference decision module gives an affirmative answer (Yacoub, col 9, ln 41-54, with speed as a preference, the apparatus selects a printer with higher emphasis on speed rather than quality).

Regarding claim 71, which depends from claim 66, the combination of Kato and Yacoub teaches a distributed printing control apparatus wherein said alternative printer selection module comprises:

A module that selects a printer of a highest printing speed among the at least one printer selected by said candidate printer selection module (Yacoub, col 9, ln 13-21, fastest printer is selected).

Regarding claim 72, which depends from claim 59, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A display control module that displays a name of the printer selected by said alternative printer selection module on a display device (Yacoub, col 11, ln 57-60, after printing is completed, regardless if an alternative or candidate printer is used, the name

of said alternative or candidate printer is given as a location, and is presented to the user via the user interface).

Regarding claim 74, which depends from claim 72, the combination of Kato and Yacoub teaches a distributed printing control apparatus further comprising:

A module that causes said display control module to give a display when the distributed printing of the print data is concluded (Yacoub, col 11, ln 57-60, display also notifies user of completion).

Claim 76 recites identical features as claim 59 except claim 76 is a method claim. Thus, arguments similar to that presented above for claim 59 are equally applicable to claim 76.

Regarding claim 77, which depends from claim 76, claim 77 recites identical features as claim 60 except claim 77 is a method claim. Thus, arguments similar to that presented above for claim 60 are equally applicable to claim 77.

Regarding claim 78, which depends from claim 61, claim 78 recites identical features as claim 61 except claim 78 is a method claim. Thus, arguments similar to that presented above for claim 61 are equally applicable to claim 78.

Claim 79 recites identical features as claim 59 except claim 79 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 59 is equally applicable to claim 79. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Yacoub, col 5, ln 35-44, wherein distributed printer controller is implemented as a virtual printer application on a computer or server.

Regarding claim 80, which depends from claim 79, claim 80 recites identical features as claim 60 except claim 80 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 60 is equally applicable to claim 80.

Regarding claim 81, which depends from claim 80, claim 81 recites identical features as claim 61 except claim 81 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 61 is equally applicable to claim 81.

Regarding claim 82, which depends from claim 79, claim 82 recites identical features as claim 62 except claim 82 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 62 is equally applicable to claim 82.

Regarding claim 83, which depends from claim 82, claim 83 recites identical features as claim 63 except claim 83 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 63 is equally applicable to claim 83.

Regarding claim 84, which depends from claim 79, claim 84 recites identical features as claim 64 except claim 84 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 64 is equally applicable to claim 84.

Regarding claim 85, which depends from claim 79, claim 85 recites identical features as claim 65 except claim 85 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 65 is equally applicable to claim 85.

Regarding claim 86, which depends from claim 79, claim 86 recites identical features as claim 66 except claim 86 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 66 is equally applicable to claim 86.

Regarding claim 88, which depends from claim 79, claim 86 recites identical features as claim 66 except claim 86 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 66 is equally applicable to claim 86.

Regarding claim 90, which depends from claim 86, claim 90 recites identical features as claim 70 except claim 90 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 70 is equally applicable to claim 90.

Regarding claim 91, which depends from claim 86, claim 91 recites identical features as claim 71 except claim 91 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 71 is equally applicable to claim 91.

Regarding claim 92, which depends from claim 79, claim 92 recites identical features as claim 72 except claim 92 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 72 is equally applicable to claim 92.

Regarding claim 94, which depends from claim 92, claim 94 recites identical features as claim 74 except claim 94 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 74 is equally applicable to claim 94.

Regarding claim 96, claim 96 recites identical features as claim 59 except claim 96 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 59 is equally applicable to claim 96.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Petchenkine et al. (US 6,483,524), hereafter referred to as Kato and Petchenkine.

Regarding claim 6, which depends from claim 4, Kato teaches a distributed printing control apparatus comprising a virtual printer driver storage module with a virtual driver, an intermediate print data generation module that executes the virtual printer driver, wherein the intermediate print data is the print data of interest, and a virtual printer printing information module that displays an input window to set pieces of information with a mouse or keyboard, as explained in the rejection of claim 4 above. Kato also discloses an apparatus comprising a real printer printing information setting module that is individually provided for each of said plurality of printers connected to said distributed printing control apparatus to set various pieces of information required for printing with said each printer (Kato, col 7, ln 65-67, drivers for printers are provided and stored in external memory). Kato does not disclose expressly an apparatus with a display control module that displays a display window on said display device, the display window including a plurality of icons for individually activating said real printer printing information setting modules and an icon for activating said virtual printer printing information setting module. Petchenkine, however, discloses an apparatus comprising a display control module that displays a display window on said display device, the display window including a plurality of icons for individually activating said real printer printing information setting modules and an icon for activating said virtual printer printing information setting module (Petchenkine, icons for activating real and virtual printing information setting modules are shown in fig 1, wherein SmartScan #320 is a virtual printer (see col 4, ln 63-66), and Printer Module #326 is also shown. Also see col 11, ln 5-18, for example, wherein icons are used to activate information-setting modules).

Kato and Petchenkine are combinable because they are from a similar field of endeavor of printing systems with user interfaces. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the use of icons of Petchenkine for activating real and virtual print information setting modules with the apparatus of Kato comprising a virtual printer storage module with virtual printer driver, an intermediate print data generation module for executing a virtual driver, wherein the obtained intermediate information is the print data of interest, as well as a virtual printer information setting module with display window. The motivation for doing so would have been to configure a prepress workflow that is simplified in a visual, graphical user interface (Petchenkine, col 1, ln 34-38). Therefore, it would have been obvious to combine Petchenkine with Kato to obtain the invention as specified in claim 6.

Regarding claim 7, which depends from claim 1, the combination of Kato and Petchenkine teaches a distributed printing control apparatus further comprising:

A distribution information setting module that displays an input window for distribution of the print data and sets various pieces of information required for distributing the print data into said plurality of printers, based on the input data from said input device (Kato, figure 7, Virtual printer displays window for entering print distribution data); and

A print data distribution module that distributes the print data into said plurality of printers, based on the various pieces of information set by said distribution information setting module (Petchenkine, figure 10, SmartScan setting window specifies

destinations, #382. Also see Figure 12, wherein destination information is set in virtual printer window).

Claims 8, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Petchenkine et al. (US 6,483,524) and further in view of Yacoub (6,552,813), hereafter referred to as Kato, Petchenkine, and Yacoub.

Regarding claim 8, which depends from claim 7, the combination of Kato and Petchenkine teaches a distributed printing control apparatus comprising a virtual printer driver storage module with a virtual driver, an intermediate print data generation module that executes the virtual printer driver, wherein the intermediate print data is the print data of interest, and a distribution information setting module for displaying an input window for inputting distribution information, as explained in the rejection of claim 7 above. The combination of Kato and Petchenkine does not disclose expressly an apparatus wherein one of the various pieces of information required for distributing the print data into said plurality of printers restricts a destination of distribution of the print data to a printer included in a specific group selected among said plurality of printers connected to said distributed printing control apparatus. Yacoub, however, discloses an apparatus wherein one of the various pieces of information required for distributing the print data into said plurality of printers restricts a destination of distribution of the print data to a printer included in a specific group selected among said plurality of printers connected to said distributed printing control apparatus (Yacoub, col 4, ln 30-41, the

pieces of information regarding distribution are speed and quality preferences, which narrow down the range of printer available to print.

Kato, Petchenkine, and Yacoub are combinable because they are from a similar field of endeavor of printing systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Yacoub which restricts a destination of printing based on distribution data with the apparatus combination of Kato and Petchenkine comprising a distributed printing control apparatus comprising a virtual printer driver storage module with a virtual driver, an intermediate print data generation module that executes the virtual printer driver, wherein the intermediate print data is the print data of interest, and a distribution information setting module for displaying an input window for inputting distribution information. The motivation for doing so would have been to relieve the user of the burdens of trying to find or select the most appropriate printer for the job (Yacoub, col 5, ln 1-2), to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58), and also to configure a prepress workflow that is simplified in a visual, graphical user interface (Petchenkine, col 1, ln 34-38). Therefore, it would have been obvious to combine Yacoub with the combination of Kato and Petchenkine to obtain the invention as specified in claim 8.

Regarding claim 18, which depends from claim 16, the combination of Kato, Petchenkine, and Yacoub teaches a computer-readable medium comprising computer executable instructions causing a computer to execute steps of:

(i) Setting various pieces of information required for printing with each of said plurality of printers connected to said distributed printing control apparatus, said function (f) being individually set for said each printer (Kato, figure 7, print information individually set for each printer); and

(g) Displaying a display window on said display device, the display window including a plurality of icons for individually activating said functions (f) and an icon for activating said function (e) (Petchenkine, icons for activating real and virtual printing information setting modules are shown in fig 1, wherein SmartScan #320 is a virtual printer (see col 4, ln 63-66), and printer module #326 is also shown. Also see col 11, ln 5-18, for example, wherein icons are used to activate information-setting modules).

Regarding claim 19, the combination of Kato, Petchenkine, and Yacoub further teaches a computer-readable medium comprising computer executable instructions (Kato, col 3, ln 6-14, real and virtual drivers executed on computer with CPU and RAM) causing a computer to execute steps in a distributed printing control apparatus, said distributed printing control apparatus connecting with a plurality of computers (Yacoub, figure 4, client station A #420, client station B #422), distributing print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000), converting the distributed print data into output data suitable for each of said printers via a printer driver provided for said each printer (Kato, col 8, ln 17-22, individual print drivers are used to for each printer), and transmitting the converted output data to said each printer (Kato, col 5, ln 15-24, pages are sent to

respective printers), said computer program causing a computer to attain at least one function corresponding to the structure of a distributed printing control apparatus in accordance with claim 7 (Kato, figure 7, Virtual printer displays window for entering print distribution data. See also Petchenkine, figure 10, SmartScan setting window specifies destinations, #382. Also see Figure 12, wherein destination information is set in virtual printer window).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Barry et al. (US 6,606,165), hereafter referred to as Kato and Barry.

Regarding claim 9, which depends from claim 1, Kato teaches a distributed printing control apparatus comprising a virtual printer driver storage module with a virtual driver, an intermediate print data generation module that executes the virtual printer driver, wherein the intermediate print data is the print data of interest, as explained above in the rejection of claim 1. Kato does not expressly disclose a distributed printing control apparatus wherein the intermediate print data obtained by said intermediate print data generation module is temporarily registered as an intermediate print file in an external storage device. Barry, however, discloses an apparatus wherein the intermediate print data obtained by said intermediate print data generation module is temporarily registered as an intermediate print file in an external storage device (Barry, col 18, ln 33-35, intermediate data is created and stored in memory).

Kato and Barry are combinable because they are from the same field of endeavor of distributed printing with a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add the distributed printing control apparatus comprising saving the intermediate print file in an external storage device with the apparatus of Kato comprising a virtual printer storage module with virtual printer driver, an intermediate print data generation module for executing a virtual driver, wherein the obtained intermediate information is the print data of interest. The motivation for doing so would have been save the print data in case of an error with a printer to further provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Barry with Kato to obtain the invention as specified in claim 9.

Claims 21-23, 27, 29, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Shimada (US 6,654,136).

Regarding claim 21, Kato teaches a distributed printing control apparatus that distributes print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000) and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of said each printer (Kato, figure 7, print driver corresponds to

specific printer). Kato does not expressly disclose the said distributed printing control apparatus comprising a virtual printer driver storage module that, when said plurality of printers are of an identical type, stores therein a virtual printer driver for specifying information on the identical type of said printers as information with regard to a virtual printer. Shimada, however, teaches a distributed printing control apparatus that, when said plurality of printers are of an identical type, stores therein a virtual printer driver for specifying information on the identical type of said printers as information with regard to a virtual printer (Shimada, col 4, ln 55-65, printer drivers are stored in RAM and ROM and operated on by a CPU. Printers #100 in figure 5 are of identical type, and corresponding print controller #86 in figure 12 controls the identical types with only one driver, functioning as a virtual driver). Kato also discloses an intermediate print data generation module that executes the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program). Shimada additionally teaches a print data allocation module that allocates the intermediate print data to said plurality of printers (Shimada, col 6, ln 50-54, allocate pages in accordance with the number of usable printers), and an output data control module that transmits the intermediate print data respectively to said plurality of printers according to the allocation by said print data allocation module without any data conversion by the corresponding printer driver (Shimada, activating the multi-printer function, #78 of figure 12, obviates the need for individual data conversion by the corresponding printer driver).

Kato and Shimada are combinable because they are from the same field of endeavor of distributed printing to a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Shimada which stores a driver for identical printers and prints to the printers using a virtual printer driver without data conversion by the corresponding driver with the apparatus of Kato comprising the application program, a plurality of printers, a virtual driver system, and an intermediate print data generation module. The motivation for doing so would have been to use identical printers for consistent print quality and to take advantage of the economy of scale to enable a plurality of printers to print a document without disordering a page order (Shimada, col 1, ln 48-52), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Shimada with Kato to obtain the invention as specified in claim 21.

Regarding claim 22, which depends from claim 21, the combination of Kato and Shimada further teaches a distributed printing control apparatus wherein a predetermined unit of the allocation of the intermediate print data by said print data allocation module is each page of a document expressed by print data (Shimada, col 8, ln 45-51, data allocation is based upon pages).

Regarding claim 23, which depends from claim 21, the combination of Kato and Shimada further teaches a distributed printing control apparatus wherein the intermediate print data obtained by said intermediate print data generation module is

temporarily registered as an intermediate print file in an external storage device (Shimada, col 8, ln 45-51, intermediate data is stored in spooler before being sent to printers).

Regarding claim 27, which depends from claim 21, the combination of Kato and Shimada further teaches a distributed printing control apparatus comprising:

A distribution information setting module that displays an input window for distribution of the print data and sets various pieces of information required for distributing the print data into said plurality of printers, based on input data from an input device, wherein said print data allocation module allocates the intermediate print data, based on the various pieces of information set by said distribution information setting module (Kato, figure 7, virtual printer input window allows for setting of driver information. See also Shimada, figure 12, wherein allocation information is set for multi-printer mode).

Regarding claim 29, which depends from claim 27, the combination of Kato and Shimada further teaches a distributed printing control apparatus wherein the intermediate print data obtained by said intermediate print data generation module is specified as an intermediate print file and is temporarily registered, together with the various pieces of information set by said distribution information setting module, in an external storage device (Shimada, col 8, ln 45-51, intermediate data is stored in spooler before being sent to printers).

Regarding claim 33, the combination of Kato and Shimada further teaches a distributed printing control method that distributes print data of interest, which is

generated by an application program and is to be printed, into a plurality of printers and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of said each printer (Kato, figure 7, virtual printer input window allows for setting of driver information for each type of printer. See also Shimada, figure 12, wherein allocation information is set for multi-printer mode), said distributed printing control method comprising at least one step corresponding to the structure of a distributed printing control apparatus in accordance with claim 22 (Shimada, col 8, ln 45-51, data allocation is based upon pages).

Claims 24, 25, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Shimada (US 6,654,136), and further in view of Roosen et al. (US 6,856,413), hereafter referred to as Kato, Shimada, and Roosen.

Regarding claim 24, which depends on claim 23, the combination of Kato and Shimada teaches a distributed printing control apparatus with an application program generating data for a plurality of printers and a virtual printer, which generates intermediate print data, allocates the print data to the plurality of printers, saves the intermediate print data in an external storage device, and transmits the intermediate print data according to the allocation information, as explained above in the rejection of claim 23. The combination of Kato and Shimada does not disclose expressly an apparatus which reads the intermediate print file registered in said external storage device in response to an external command and re-executing distributed printing of the

intermediate print data in the intermediate print file with said plurality of printers. Roosen, however, discloses an apparatus which reds the intermediate print file registered in the external storage in response to an external command and re-executing the distributed printing with the plurality of printers (Roosen, col 3, ln 49-56, print jobs are stored in the printer and not printed until an operator explicitly requests printing).

Kato, Shimada, and Roosen are combinable because they are all in a similar field of endeavor of printing systems with a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Roosen comprising the "hold until released" feature with the combination of Kato and Shimada comprising a distributed printing control apparatus with an application program generating data for a plurality of printers and a virtual printer, which generates intermediate print data, allocates the print data to the plurality of printers, saves the intermediate print data in an external storage device, and transmits the intermediate print data according to the allocation information. The motivation for doing so would have been to improve the user interface enhancing user efficiency and to improve the way in which information is collected, processed, and presented to the user permitting enhanced printer control, and to collect information concerning the status of print jobs of the user at a predetermined plurality of printers (Roosen, col 1, ln 30-39), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it

would have been obvious to combine Roosen with the combination of Kato and Shimada to obtain the invention as specified in claim 24.

Regarding claim 25, which depends from claim 24, the combination of Kato, Shimada, and Roosen further teaches a distributed printing control apparatus wherein said print data allocation module and said output data control module are activated again to attain the re-execution of the distributed printing (Roosen, col 3, ln 49-56, print jobs that are stored in the printer are released on command, and after jobs are released using feature of Roosen, jobs stored in memory of Shimada, col 8, ln 45-51, are released and allocated and distributed using newly activated modules. After storage of whole page, pages are divided and allocated (Shimada)).

Regarding claim 40, the combination of Kato, Shimada, and Roosen further teaches a computer-readable medium comprising computer-executable instructions (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program), wherein the instructions cause a computer to execute the steps of controlling a distributed printing control apparatus, said distributed printing control apparatus distributing print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000) and outputting the distributed print data to each of said plurality of printers via a printer driver provided for said each printer (Kato, figure 7, print driver corresponds to specific printer), said computer program causing a computer to attain at least one function corresponding to the structure of a distributed printing control apparatus in accordance with claim 25

(Roosen, col 3, ln 49-56, print jobs that are stored in the printer are released on command, and after jobs are released using feature of Roosen, jobs stored in memory of Shimada, col 8, ln 45-51, are released and allocated and distributed using newly activated modules. After storage of whole page, pages are divided and allocated (Shimada)).

Claims 26, 31, 32, 34-37, 39, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Shimada (US 6,654,136), and further in view of Yamamoto et al. (US 6,553,431), hereafter referred to as Kato, Shimada, and Yamamoto.

Regarding claim 26, which depends from claim 21, the combination of Kato and Shimada teaches a distributed printing control apparatus with an application program generating data for a plurality of printers and a virtual printer, which generates intermediate print data, allocates the print data to the plurality of printers, and transmits the intermediate print data according to the allocation information, as explained in the rejection of claim 21 above. The combination of Kato and Shimada does not teach a distributed printing control apparatus further comprising:

A performance information collecting module that collects information regarding performances of each of said plurality of printers from a printer driver provided for said each printer; and

An identity decision module that determines that said plurality of printers are of the identical type, based on the performances of said plurality of printers collected by said performance information collecting module.

Yamamoto, however, teaches a performance information collection module and an identity decision module (Yamamoto, col 10, ln 12-16, a performance information collecting module acquires device profiles from a plurality of printers, and col 18, ln 3-10, for example, the identity decision module determines if device profiles are identical to profiles store in memory, thereby determining if printers are identical).

Kato, Shimada, and Yamamoto are combinable because they are in a similar field of endeavor of distributed printing systems using a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the performance information collecting module and identity decision module of Yamamoto with the apparatus of the combination of Kato and Shimada comprising a distributed printing control apparatus with an application program generating data for a plurality of printers and a virtual printer, which generates intermediate print data, allocates the print data to the plurality of printers, and transmits the intermediate print data according to the allocation information. The motivation for doing so would have been to provide an information processing system and method in which high-speed processing to communicate data can be performed at low cost and the desired output device can be selected from among a plurality of output devices (Yamamoto, col 2, ln 45-53), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, thereby reducing the load

on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Yamamoto with the combination of Kato and Shimada to obtain the invention as specified in claim 26.

Regarding claim 31, the combination of Kato, Shimada, and Yamamoto further teaches a distributed printing control apparatus that distributes print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000) and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of said each printer (Kato, figure 7, print driver corresponds to specific printer), said distributed printing control apparatus comprising:

A virtual printer driver storage module that specifies information on a virtual printer, and when said plurality of printers are of an identical type, stores therein a virtual printer driver for specifying information on the identical type of said printers (Shimada, col 4, ln 55-65, printer drivers are stored in RAM and ROM and operated on by a CPU. Printers #100 in figure 5 are of identical type, and corresponding print controller #86 in figure 12 controls the identical types with only one driver, functioning as a virtual driver);

An intermediate print data generation module that executes the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program);

A print data allocation module that allocates the intermediate print data to said plurality of printers (Shimada, col 6, ln 50-54, allocate pages in accordance with the number of usable printers);

An identity decision module that determines whether or not said plurality of printers are of the identical type (Yamamoto, col 10, ln 12-16, a performance information collecting module acquires device profiles from a plurality of printers, and col 18, ln 3-10, for example, the identity decision module determines if device profiles are identical to profiles stored in memory, thereby determining if printers are identical); and

An output data control module that, when it is determined that said plurality of printers are of the identical type (Shimada, Printers #100 in figure 5 are of identical type, and corresponding print controller #86 in figure 12 controls the identical types with only one driver, functioning as a virtual driver), transmits the intermediate print data respectively to said plurality of printers according to the allocation by said print data allocation module without any data conversion by the corresponding printer driver (Shimada, activating the multi-printer function, #78 of figure 12, obviates the need for individual data conversion by the corresponding printer driver. Also see, col 6, ln 50-54, where Shimada allocates pages in accordance with the number of usable printers), and when it is determined that said plurality of printers are not of the identical type, transmits the intermediate print data respectively to said plurality of printers according to the allocation by said print data allocation module with data conversion by the

corresponding printer driver (Kato, figure 7, data is allocated and sent to the corresponding print driver when printers are not of the identical type).

Regarding claim 32, the combination of Kato, Shimada, and Yamamoto further teaches a distributed printing control method that distributes print data of interest, which is generated by an application program (Kato, col 3, ln 15-17, prepare documents from application program) and is to be printed, into a plurality of printers (Kato, figure 8, printers #2000 and #3000) and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of said each printer (Kato, figure 7, print driver corresponds to specific printer), said distributed printing control method comprising the steps of:

(a) When said plurality of printers are of an identical type, providing in advance a virtual printer driver for specifying information on the identical type of said printers as information with regard to a virtual printer in a storage device (Shimada, col 4, ln 55-65, printer drivers are stored in RAM and ROM and operated on by a CPU. Printers #100 in figure 5 are of identical type, and corresponding print controller #86 in figure 12 controls the identical types with only one driver, functioning as a virtual driver);

(b) Executing the virtual printer driver to obtain intermediate print data adequate for said virtual printer from said application program (Kato, col 3, ln 6-14, computer contains CPU and RAM for executing virtual driver program);

(c) Allocating the intermediate print data to said plurality of printers (Shimada, col 6, ln 50-54, allocate pages in accordance with the number of usable printers); and

(d) Transmitting the intermediate print data respectively to said plurality of printers according to the allocation in said step (c) without any data conversion by the corresponding printer driver (Shimada, activating the multi-printer function, #78 of figure 12, obviates the need for individual data conversion by the corresponding printer driver).

Claim 34 recites identical features as claim 31 except claim 34 is a method claim. Thus, arguments similar to that presented above for claim 31 are equally applicable to claim 34.

Claim 35 recites identical features as claim 32 except claim 35 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 32 is equally applicable to claim 35. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Shimada, col 4, ln 55-65, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Regarding claim 36, which depends from claim 35, the combination of Kato, Shimada, and Yamamoto further teaches a computer-readable medium comprising computer-executable instructions wherein a predetermined unit of the allocation of the intermediate print data by said function (c) (of claim 35) is each page of a document expressed by print data (Shimada, col 6, ln 50-54, allocate pages in accordance with the number of usable printers).

Regarding claim 37, which depends from claim 35, the combination of Kato, Shimada, and Yamamoto further teaches a computer-readable medium comprising computer-executable instructions wherein the intermediate print data obtained by said

function (b) (of claim 35) is temporarily registered as an intermediate print file in an external storage device (Shimada, col 8, ln 45-51, intermediate data is stored in spooler before being sent to printers).

Regarding claim 39, which depends from claim 35, the combination of Kato, Shimada, and Yamamoto further teaches a computer-readable medium comprising computer-executable instructions wherein the instructions cause a computer to execute the steps of:

(e) Displaying an input window for distribution of the print data and setting various pieces of information required for distributing the print data into said plurality of printers, based on input data from an input device (Kato, col 3, ln 19-20, input is accomplished through a mouse or keyboard), where said function (c) allocates the intermediate print data, based on the various pieces of information set in said step (e) (Kato, figure 7, virtual printer input window allows for setting of driver information. See also Shimada, figure 12, wherein allocation information is set for multi-printer mode); and

(f) Specifying the intermediate print data obtained by said function (b) as an intermediate print file and outputting the intermediate print file together with the various pieces of information set in said step (e) to an external storage device (Shimada, col 8, ln 45-51, intermediate data is stored in spooler before being sent to printers).

Claim 41 recites identical features as claim 34 except claim 41 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 34 is equally applicable to claim 41. Applicant's attention is further invited to col 3, ln 6-14,

(real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Shimada, col 4, ln 55-65, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Claim 42 recites identical features as claim 32 except claim 42 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 32 is equally applicable to claim 42. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Shimada, col 4, ln 55-65, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Claim 43 recites identical features as claim 31 except claim 43 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 31 is equally applicable to claim 43. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Shimada, col 4, ln 55-65, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Shimada (US 6,654,136), and further in view of Yacoub (US 6,552,813).

Regarding claim 28, which depends from claim 27, the combination of Kato and Shimada teaches a distributed printing control apparatus with an application program generating data for a plurality of printers and a virtual printer, which generates

intermediate print data, allocates the print data to the plurality of printers, transmits the intermediate print data according to the allocation information, and further comprises a distribution information setting module for displaying an input window for setting information required for distribution and allocation, as explained in the rejection of claim 27 above. The combination of Kato and Shimada does not disclose expressly an apparatus wherein one of the various pieces of information required for distributing the print data into said plurality of printers restricts a destination of distribution of the print data to a printer included in a specific group selected among said plurality of printers connected to said distributed printing control apparatus. Yacoub, however, teaches a distributed printing control apparatus which restricts a destination of distribution of print data to a printer included in a specific group selected from the plurality of printers (Yacoub, col 6, ln 32-34, wherein lists and databases containing the most appropriate printer may be dynamically updated, restricting the destination of print data to a selected group of a plurality of printers).

Kato, Shimada, and Yacoub are combinable because they are from a similar field of endeavor of printing systems of a plurality of printers using a virtual printer. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Yacoub which restricts the destination of print data to a specific group of printers with the apparatus of the combination of Kato and Shimada comprising a distributed printing control apparatus with an application program generating data for a plurality of printers and a virtual printer, which generates intermediate print data, allocates the print data to the plurality of printers, transmits the

intermediate print data according to the allocation information, and further comprises a distribution information setting module for displaying an input window for setting information required for distribution and allocation. The motivation for doing so would have been to relieve the user of the burdens of trying to find or select the most appropriate printer for the job (Yacoub, col 5, ln 1-2), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Yacoub with the aforementioned combination of Kato and Shimada to obtain the invention as specified in claim 28.

Regarding claim 30, which depends from claim 21, the combination of Kato, Shimada, and Yacoub further teaches a distributed printing control apparatus wherein at least one of said plurality of printers is connected to said distributed printing control apparatus via a computer network (Yacoub, figure 5, actual printers #660 and #670 are connected via network #650 to client station with distributed printing control apparatus).

Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Shimada (US 6,654,136) and Yamamoto et al. (US 6,553,431) as applied to claim 37 above, and further in view of Roosen et al. (US 6,856,413), hereafter referred to as Kato, Shimada, Yamamoto, and Roosen.

Regarding claim 38, which depends from claim 37, the combination of Kato, Shimada, and Yamamoto teaches a computer-readable medium comprising computer-

executable instructions, wherein the instructions cause a computer to execute the steps of providing a virtual driver for a plurality of identical printers, executing the virtual driver to obtain intermediate data, allocating intermediate data for the plurality of printers, temporarily saving the intermediate data in an external storage device, and transmitting the intermediate print data according to the allocation information, as explained above in the rejection of claim 37. The combination of Kato, Shimada, and Yamamoto does not disclose expressly the steps of causing a computer to execute the instructions of reading the intermediate print file registered in said external storage device in response to an external command and re-executing distributed printing of the intermediate print data in the intermediate print file with said plurality of printers.. Roosen, however, discloses a computer-readable medium comprising computer-executable instructions which cause a computer to execute the steps of reading the intermediate print file in said external storage device in response to an external command and re-executing distributed printing of the intermediate print data in the intermediate print file with said plurality of printers (Roosen, col 3, ln 7-16, computer program embodied on computer-readable medium. Also see col 3, ln 49-56, wherein the print jobs are stored in the printer and not printed until an operator explicitly requests printing).

Kato, Shimada, Yamamoto, and Roosen are combinable because they are all in a similar field of endeavor of printing systems with a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the computer-executable instructions embodied on a computer-readable medium of Roosen comprising the step of reading the intermediate file in storage in

response to a command and re-executing distributing printing with the computer-executable instructions embodied on a computer-readable medium of Kato, Shimada, and Yamamoto comprising instructions to cause a computer to execute the steps of providing a virtual driver for a plurality of identical printers, executing the virtual driver to obtain intermediate data, allocating intermediate data for the plurality of printers, temporarily saving the intermediate data in an external storage device, and transmitting the intermediate print data according to the allocation information. The motivation for doing so would have been to improve the user interface enhancing user efficiency and improve the way in which information is collected, processed, and presented to the user permitting enhanced printer control, and to collect information concerning the status of print jobs of the user at a predetermined plurality of printers (Roosen, col 1, ln 30-39), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Roosen with the combination of Kato, Shimada, and Yamamoto to obtain the invention as specified in claim 38.

Claims 44-46, 48, and 50-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Roosen et al. (US 6,856,413), hereafter referred to as Kato and Roosen.

Regarding claim 44, Kato teaches a distributed printing control apparatus that groups print data of interest, which is to be printed, by a predetermined unit, specifies

allocation of respective grouped parts of the print data to a plurality of printers as allocation information (Kato, col 5, ln 15-24, pages are grouped according to attributes and sent to a plurality of printers via the virtual driver for distributive printing), and outputs the print data to said plurality of printers (Kato, figure 8, printers #2000 and #3000) in a distributive manner based on the allocation information (Kato, col 5 ln 4-14, print driver allocates information and sends to printers). Kato does not disclose expressly a working status detection module that detects a current working status of a printer specified as a destination of distribution according to the allocation information and a display control module that displays one window on a display device, the window including at least a field showing the allocation information and another field showing the current working status detected by said working status detection module. Roosen, however, teaches a distributed printing control apparatus comprising a working status detection module that detects a current working status of a printer specified as a destination of distribution according to the allocation information and a display control module that displays one window on a display device, the window including at least a field showing the allocation information and another field showing the current working status detected by said working status detection module (Roosen, figure 9, working status display shows current status of printer in element #31, as well as the allocation information of jobs with a plurality of printers).

Kato and Roosen are combinable because they are from a similar field of endeavor of distributed printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the distributed printing control

apparatus of Roosen comprising a working status detection module and a display module for displaying allocation information and current working status with the apparatus of Kato comprising the allocation of print data to a plurality of printers. The motivation for doing so would have been to improve the user interface enhancing user efficiency and improve the way in which information is collected, processed, and presented to the user permitting enhanced printer control, and to collect information concerning the status of print jobs of the user at a predetermined plurality of printers (Roosen, col 1, ln 30-39), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Roosen with Kato to obtain the invention as specified in claim 44.

Regarding claim 45, which depends from claim 44, the combination of Kato and Roosen teaches a distributed printing control apparatus further comprising:

A first control module that causes said display control module to carry out a display with regard to a print job, while one unit of print data specified by the print job is either in distributed printing or in a waiting queue (Roosen, figure 9, shows jobs in unprocessed queue with various wait states such as busy and waiting, corresponding to the distributed and waiting queues).

Regarding claim 46, which depends from claim 45, the combination of Kato and Roosen teaches a distributed printing control apparatus further comprising:

A second control module that causes said display control module to carry out a display with regard to the print job, while the distributed printing of the unit of print data specified by the print job is concluded (Roosen, figure 9, jobs processed, i.e. completed, are displayed in window #32. See also fig 13, wherein a display is shown upon the completion of a job).

Regarding claim 48, which depends from claim 46, the combination of Kato and Roosen teaches a distributed printing control apparatus wherein said second control module allocates an order of collection to the respective printers by considering a sequence of collected resulting prints and displays the allocation in the window (Roosen, figure 9, the second control module shows the order of the distributed jobs and the location of their printing in accordance with the allocation information, shown in window #32).

Regarding claim 50, which depends on claim 44, the combination of Kato and Roosen teaches a distributed printing control apparatus wherein the allocation information with regard to multiple print jobs, each representing the print data, is simultaneously displayed in the window (Roosen, figure 9, multiple jobs for multiple printers, i.e. allocation and distribution information, is shown in the windows #31 and #32).

Regarding claim 51, which depends on claim 44, the combination of Kato and Roosen teaches a distributed printing control apparatus comprising:

A distribution information setting module that displays an input window on said display device and sets diverse pieces of information with regard to distribution of the

print data, based on input data from an input device, wherein the allocation information is specified, based on the diverse pieces of information set by said distribution information setting module (Roosen, figure 8, job control for a plurality of jobs on a plurality of printers is provided to set distribution and allocation information).

Regarding claim 52, the combination of Kato and Roosen teaches a distributed printing control method that groups print data of interest, which is to be printed, by a predetermined unit, specifies allocation of respective grouped parts of the print data to a plurality of printers as allocation information, and outputs the print data to said plurality of printers (Kato, figure 8, printers #2000 and #3000) in a distributive manner based on the allocation information (Kato, col 5, ln 4-24, print job is allocated to different printers and then sent for printing at the corresponding printers), said distributed printing control method comprising the steps of:

(a) Detecting a current working status of a printer specified as a destination of distribution according to the allocation information; and

(b) Displaying one window on a display device, the window including at least a field showing the allocation information and another field showing the current working status detected in said step (a) (Roosen, figure 9, working status display shows results of current working status detector as the current status of printer in element #31, as well as displaying the allocation information of jobs with a plurality of printers).

Regarding claim 53, which depends from claim 45, the combination of Kato and Roosen teaches a distributed printing control method that groups print data of interest, which is to be printed, by a predetermined unit, specifies allocation of respective

grouped parts of the print data to a plurality of printers (Kato, figure 8, printers #2000 and #3000) as allocation information (Kato, col 5, ln 4-14, print job is allocated on a page by page basis and sent to corresponding distributed printers), and outputs the print data to said plurality of printers in a distributive manner based on the allocation information (Kato, col 5, ln 15-24, printing occurs on data previously allocated for distributed printed), said distributed printing control method comprising at least one step corresponding to the structure of a distributed printing control apparatus in accordance with claim 45 (Roosen, figure 9, shows jobs in unprocessed queue with various wait states such as busy and waiting, corresponding to the distributed and waiting queues).

Claim 54 recites identical features as claim 44 except claim 54 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 44 is equally applicable to claim 54. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Roosen, col 3, ln 7-16, wherein the apparatus is controlled by software in RAM as operated on a computer.

Regarding claim 55, which depends from claim 54, claim 55 recites identical features as claim 45 except claim 55 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 45 is equally applicable to claim 55. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Roosen, col 3, ln 7-16, wherein the apparatus is controlled by software in RAM as operated on a computer.

Regarding claim 56, which depends from claim 55, claim 56 recites identical features as claim 46 except claim 56 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 46 is equally applicable to claim 56. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Roosen, col 3, ln 7-16, wherein the apparatus is controlled by software in RAM as operated on a computer.

Regarding claim 57, which depends from claim 47, claim 57 recites identical features as claim 53 except claim 57 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 53 is equally applicable to claim 57. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Roosen, col 3, ln 7-16, wherein the apparatus is controlled by software in RAM as operated on a computer.

Claim 58 recites identical features as claim 44 except claim 58 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 44 is equally applicable to claim 58. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See also Roosen, col 3, ln 7-16, wherein the apparatus is controlled by software in RAM as operated on a computer.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Roosen et al. (US 6,856,413) as applied to claim 46 above, and further in view of Shimada (US 6,654,136), hereafter referred to as Kato, Roosen, and Shimada.

Regarding claim 47, which depends from claim 46, the combination of Kato and Roosen teaches a distributed printing control apparatus for distributed printing wherein jobs are allocated for a plurality of printers, and a working status detection module detects the status of printers, and a display control module displays the status of the printer, the state of a job in a queue, and also displays when a job is concluded. The combination of Kato and Roosen does not disclose expressly an apparatus comprising of a switch that is operated to alternatively change over between the display by said first control module and the display by said second control module. Shimada, however, teaches an distributed printing control apparatus comprising of a switch that is operated to alternatively change over between the display by said first control module and the display by said second control module (Shimada, figure 12, tab control of Print Control #86 allows user to switch between screens in the same window).

Kato, Roosen, and Shimada are combinable because they are all in a similar field of endeavor of printing systems with a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Shimada comprising the switch that is operated to change over between a first and second display module with the apparatus of the combination of Kato and Roosen comprising of a distributed printing control apparatus for distributed

printing wherein jobs are allocated for a plurality of printers, and a working status detection module detects the status of printers, and a display control module displays the status of the printer, the state of a job in a queue, and also displays when a job is concluded. The motivation for doing so would have been to improve the user interface enhancing user efficiency and improve the way in which information is collected, processed, and presented to the user permitting enhanced printer control, and to collect information concerning the status of print jobs of the user at a predetermined plurality of printers (Roosen, col 1, ln 30-39), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, there by reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Shimada with the combination of Kato and Roosen to obtain the invention as specified in claim 47.

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Roosen et al. (US 6,856,413) as applied to claim 46 above, and further in view of Sekikawa (US 6,498,658), hereafter referred to as Kato, Roosen, and Sekikawa.

Regarding claim 49, which depends from claim 46, the combination of Kato and Roosen teaches a distributed printing control apparatus for distributed printing wherein jobs are allocated for a plurality of printers, and a working status detection module detects the status of printers, and a display control module displays the status of the printer, the state of a job in a queue, and also displays when a job is concluded. The

combination of Kato and Roosen does not disclose expressly an apparatus wherein the second control module displays in the window a switch for activating another cycle of distributed printing after conclusion of one cycle of distributed printing. Sekikawa, however, discloses an apparatus with a switch in a window for activating another cycle of printing after the conclusion of one cycle of printing (Sekikawa, col 19, ln 45-47, in a software utility, to reprint a print job only an icon must be selected to execute the printing).

Kato, Roosen, and Sekikawa are combinable because they are from a similar field of endeavor of printing systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the apparatus of Sekikawa comprising the reprint icon for reprinting after the conclusion of a job with the apparatus of the combination of Kato and Roosen comprising a distributed printing control apparatus for distributed printing wherein jobs are allocated for a plurality of printers, and a working status detection module detects the status of printers, and a display control module displays the status of the printer, the state of a job in a queue, and also displays when a job is concluded. The motivation for doing so would have been to provide a printing apparatus wherein the operator can easily select the objective image data out of many files in storage device by pointing one of the small images which are made from the stored image data and displayed on the operation panel thereof, i.e. to reprint a stored image using an icon (Sekikawa, col 1, ln 60-65), to improve the user interface enhancing user efficiency and improve the way in which information is collected, processed, and presented to the user permitting enhanced printer control,

and to collect information concerning the status of print jobs of the user at a predetermined plurality of printers (Roosen, col 1, ln 30-39), and finally to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, thereby reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Sekikawa with the combination of Kato and Roosen to obtain the invention as specified in claim 49.

Claims 67-69, 75, 87-89, and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Yacoub (US 6,552,813, and further in view of Kumada (US 6,563,944) and Kumada (6,549,654), hereafter referred to as Kato, Yacoub, Kumada '944 and Kumada '654.

Regarding claim 67, which depends from claim 66, the combination of Kato and Yacoub teaches a distributed printing control apparatus comprising a printer specification module for specifying multiple printers and selecting an alternative printer when trouble arises, a distribution control module, a troubled time output module, a candidate printer selection module, and an alternative printer selection module, as explained in the rejection above of claim 66. Additionally, the combination of Kato and Yacoub teaches a module that, in response to specification of the automatic selection by said selection method specification module, activates said candidate printer selection module and said alternative printer selection (Yacoub, col 12, ln 4-7, activating candidate printer selection and alternative printer selection is already automatic). The

combination of Kato and Yacoub does not expressly disclose a distributed printing control wherein said printer selection module further comprises:

A selection method specification module that specifies whether the selection of the alternative printer is carried out manually or automatically;

A manual printer selection module that, in response to specification of the manual selection by said selection method specification module, displays a data input window on a display device and selects one printer among all the printers except the printer with the trouble, based on input data from an input device according to the display of the window.

The Kumada references '994 and '654, however, disclose an apparatus wherein the printer selection module comprises:

A selection method specification module that specifies whether the selection of the alternative printer is carried out manually or automatically (Kumada '944, figure 9, in the event that printing is impossible, a choice is give to the user to either manually select the printer (by selecting the "no" field, terminating the printing but allowing the user to reprint using the original manually selected print after an error is cleared), or to automatically reselect a printer to continue the printing (by selecting the "yes" field, causing another printer to be automatically selected. See col 5, ln 47-54);

A manual printer selection module that, in response to specification of the manual selection by said selection method specification module, displays a data input window on a display device and selects one printer among all the printers except the printer with the trouble, based on input data from an input device according to the

display of the window (Kumada '654, col 15, ln 30-34, to manually select a printer, the user may choose a desired printer from icons in a display window shown in fig 35).

Kato, Yacoub, Kumada '944, and Kumada '654 are combinable because they are from a similar field of endeavor of printing systems with multiple printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the selection method specification module of Kumada '944 and the manual printer selection module of Kumada '654 with the apparatus of the combination of Kato and Yacoub comprising a distributed printing control apparatus comprising a printer specification module for specifying multiple printers and selecting an alternative printer when trouble arises, a distribution control module, a troubled time output module, a candidate printer selection module, and an alternative printer selection module, and additionally a module that, in response to specification of the automatic selection by said selection method specification module, activates said candidate printer selection module and said alternative printer selection. The motivation for doing so would have been enable a user to select a substitute output device according to a user's purposes (Kumada '944, col 3, ln 33-35), to provide an image processing apparatus for discriminating an image type of a color document, and means for selecting an output device for outputting the color image from among a plurality of output devices on the basis of a discrimination result obtained by the discriminating means and color gamut information of the output devices, as well as to automatically select an optimum proof printer from a plurality of printers (Kumada, '654), as well as to provide a print control apparatus and method of automatically selecting an optimum printing device for

distributed printing, thereby reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Kumada '944 and Kumada '654 with the combination of Kato and Yacoub to obtain the invention as specified in claim 67.

Regarding claim 68, which depends from claim 66, the combination of Kato, Yacoub, Kumada '944, and Kumada '654 teaches a distributed printing control apparatus wherein said candidate printer selection module comprises:

A first selection module that selects a printer of an identical type with a type of the printer with the trouble (Kumada '944, col 6, ln 17-25, printers are identified by color gamut information, and thus printers are determined to be identical), among all the printers except the printer with the trouble (Yacoub, col 6, ln 34-37, search for available printer while excluding troubled printer); and

A second selection module that, when no printer is selected by said first selection module, selects a printer having a printing performance close to that of the printer with the trouble, among all the printers except the printer with the trouble (Yacoub, col 5, ln 55-58, database of printer information from which available printers are selected from contains printers of similar performance to printer in trouble).

Regarding claim 69, which depends from claim 68, the combination of Kato, Yacoub, Kumada '944, and Kumada '654 teaches a distributed printing control apparatus wherein said candidate printer selection module comprises:

A module that, when the printer selected by said second selection module is specified as the alternative printer, corrects the print data to make a resulting print

obtained from the alternative printer substantially equivalent to a resulting print expected from the printer with the trouble (Kumada '944, col 6, ln 38-43, alternative printers are selected and processing continues to have optimum color reproduction which is regarded to be the same as the original).

Regarding claim 75, which depends from claim 59, the combination of Kato, Yacoub, Kumada '944, and Kumada '654 teaches a distributed printing control apparatus comprising:

A module that corrects the print data to make a resulting print obtained from the alternative printer substantially similar to a resulting print expected from the printer with the trouble, when the alternative printer is of a different type from a type of the printer with the trouble (Kumada '944, col 6, ln 38-43, alternative printers are selected and processing continues to have optimum color reproduction which is regarded to be the same as the original).

Regarding claim 87, which depends from claim 86, claim 87 recites identical features as claim 67 except claim 87 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 67 is equally applicable to claim 87. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See Yacoub, col 5, ln 35-44, wherein distributed printer controller is implemented as a virtual printer application on a computer or server. See also Kumada '944, col 4, ln 60-60, and Kumada '654, col 5, ln 12-29, for disclosure of computer comprising of CPU, RAM, and ROM necessary for running distributed printer controller software.

Regarding claim 88, which depends from claim 86, claim 88 recites identical features as claim 68 except claim 88 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 68 is equally applicable to claim 88.

Regarding claim 89, which depends from claim 88, claim 89 recites identical features as claim 69 except claim 89 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 69 is equally applicable to claim 89.

Regarding claim 95, which depends from claim 79, claim 95 recites identical features as claim 75 except claim 95 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 75 is equally applicable to claim 95.

Claims 73 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (US 6,760,118) and Yacoub (US 6,552,813), and further in view of Roosen et al. (US 6,856,413), hereafter referred to as Kato, Yacoub, and Roosen.

Regarding claim 73, which depends from claim 72, the combination of Kato and Yacoub teaches a distributed printing control apparatus comprising a printer specification module for specifying multiple printers and selecting an alternative printer when trouble arises, a distribution control module, a troubled time output module, and a display control module, as explained above in the rejection of claim 72. The combination of Kato and Yacoub does not disclose expressly a distributed printing control apparatus further comprising a module that causes said display control module to give a display when the print data is either in distributed printing or in a waiting queue. Roosen, however, discloses a distributed printing control apparatus comprising

a module that causes said display control module to give a display when the print data is either in distributed printing or in a waiting queue (Roosen, figure 9, shows jobs in unprocessed queue with various wait states such as busy and waiting, corresponding to the distributed and waiting queues).

Kato, Yacoub, and Roosen are combinable because they are from a similar field of endeavor of printing systems with a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the display control module for displaying a distributed printing and waiting queue of Roosen with the distributed printing control apparatus comprising a printer specification module for specifying multiple printers and selecting an alternative printer when trouble arises, a distribution control module, a troubled time output module, and a display control module for displaying the name of an alternative printer. The motivation for doing so would have been to improve the user interface enhancing user efficiency and improve the way in which information is collected, processed, and presented to the user permitting enhanced printer control, and to collect information concerning the status of print jobs of the user at a predetermined plurality of printers (Roosen, col 1, ln 30-39), and finally to provide a print control apparatus and method of automatically selecting an optimum printing device for distributed printing, thereby reducing the load on the operator in print processing (Kato, col 1, ln 48-58). Therefore, it would have been obvious to combine Roosen with the aforementioned combination of Kato and Yacoub to obtain the invention as specified in claim 73.

Regarding claim 93, which depends from claim 92, claim 93 recites identical features as claim 73 except claim 93 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 73 is equally applicable to claim 93. Applicant's attention is further invited to col 3, ln 6-14, (real and virtual drivers executed on computer with CPU and RAM) for a computer medium disclosed by Kato. See Yacoub, col 5, ln 35-44, wherein distributed printer controller is implemented as a virtual printer application on a computer or server. See also Roosen, col 3,ln 7-16, wherein distributed printing controller is implemented in software on a computer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon J. Murphy whose telephone number is (571) 272-5945. The examiner can normally be reached on M-F, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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DOUGLAS Q. TRAN
PRIMARY EXAMINER
8/22/05